

In the claims:

Please **cancel** claims 6-7, 9, 12 and 22.

Please **amend** claims 1-5, 8, 10-11, 13-17, 20-21 and 23-27 to read as follows:

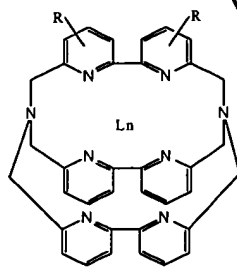
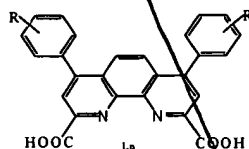
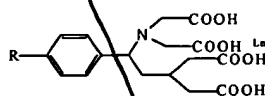
- Sub 17
1. **(Once amended)** An encapsulation vesicle, comprising:
- (a) a matrix having a surface;
 - (b) a surface coating on said matrix, wherein said surface coating includes a fluorescent donor molecule that is absorbed on, absorbed within, or covalently attached to the surface of said matrix; and
 - (c) a protection layer encapsulating said surface coating, wherein upon irradiation said fluorescent donor molecule emits fluorescence that is at least partially transmitted through said surface coating, and wherein said protection layer reduces collisional quenching of said fluorescence.
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2. **(Once amended)** An encapsulation vesicle as recited in claim 1, wherein said matrix comprises a sol-gel material.
3. **(Once amended)** An encapsulation vesicle as recited in claim 1, wherein said matrix comprises silica and synthetic polymer.
4. **(Once amended)** An encapsulation vesicle as recited in claim 1, wherein said fluorescent donor molecule is an organo-metallic complex, and wherein the matrix surface is modified with carboxyl groups so that the organo-metallic complex can be covalently attached to the matrix surface.
5. **(Once amended)** An encapsulation vesicle as recited in claim 1, wherein said fluorescent donor molecule is an organo-metallic complex, and wherein the matrix surface is modified with amino groups so that the organo-metallic complex can be covalently attached to the matrix surface.
- not a "coating" ?

8. **(Once amended)** An encapsulation vesicle as recited in claim 1, wherein said fluorescent donor molecule is an organo-metallic complex.

10. **(Once amended)** An encapsulation vesicle as recited in claim 8, wherein said organo-metallic complex is a ruthenium tris diphenyl phenanthroline complex.

11. **(Once amended)** An encapsulation vesicle as recited in claim 8, wherein said organo-metallic complex has an emission maximum at about 650 nm.

13. **(Once amended)** An encapsulation vesicle as recited in claim 8, wherein said fluorescent donor molecule is selected from the group consisting of:



where Ln is selected from the group consisting of Eu, Tb, Sm, and Dy; and R represents H or a functionality capable of covalently linking to the surface of said matrix.

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14. **(Once amended)** An encapsulation vesicle as recited in claim 8, wherein said fluorescent donor molecule has a fluorescence lifetime greater than 100 nanoseconds and is susceptible to collisional quenching by oxygen.

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15. **(Once amended)** An encapsulation vesicle as recited in claim 2, wherein said protection layer comprises a material that is translucent to said fluorescence.

16. **(Once amended)** An encapsulation vesicle as recited in claim 2, wherein said protection layer comprises a material that is transparent to said fluorescence.

17. **(Once amended)** An encapsulation vesicle as recited in claim 2, wherein said protection layer comprises a sol-gel material.

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20. **(Once amended)** An encapsulation vesicle as recited in claim 37, wherein said ligand comprises an acceptor molecule that is capable of absorbing fluorescence that has been emitted from said fluorescent donor molecule.

21. **(Once amended)** An encapsulation vesicle as recited in claim 1 for use in a fluorescence energy transfer immunoassay.

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23. **(Once amended)** An encapsulation vesicle as recited in claim 20, wherein an absorption band of said acceptor molecule overlaps with an emission band of said fluorescent donor molecule.

24. **(Once amended)** An encapsulation vesicle as recited in claim 20, wherein said acceptor molecule is selected from the group consisting of fluorescein, Cy5 and allophycocyanin.

25. **(Once amended)** An encapsulation vesicle as recited in claim 37, wherein said ligand is an antibody.

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26. (Once amended) An encapsulation vesicle as recited in claim 21, wherein said fluorescence energy transfer immunoassay is a sandwich assay.

27. (Once amended) An encapsulation vesicle as recited in claim 37, wherein said ligand is selected from the group consisting of proteins, DNA, RNA, polypeptides, aptamers and receptor molecules.

Please add new claims 32-49 that read as follows:

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32. (New) An encapsulation vesicle as recited in claim 21, wherein said fluorescence energy transfer immunoassay is a competitive binding assay.

33. (New) An encapsulation vesicle as recited in claim 1 for use in a DNA or RNA fluorescence energy transfer hybridization assay.

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34. (New) An encapsulation vesicle as recited in claim 1 for use in a fluorescence energy transfer binding assay between a ligand and a receptor.

35. (New) An encapsulation vesicle as recited in claim 34 for use in a fluorescence energy transfer binding assay between an aptamer and a protein.

36. (New) An encapsulation vesicle as recited in claim 1, wherein said fluorescent donor molecule is selected from the group consisting of cyanines, oxazines, thiazines, porphyrins, phthalocyanines, fluorescent infrared-emitting polynuclear aromatic hydrocarbons, phycobiliproteins, squaraines and organo-metallic complexes.

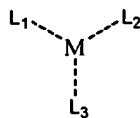
37. (New) An encapsulation vesicle as recited in claim 1 further comprising a ligand attached to said protection layer. ✓

38. (New) An encapsulation vesicle as recited in claim 37, wherein said ligand is an antigen.

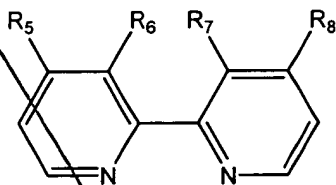
39. (New) An encapsulation vesicle as recited in claim 2, wherein said protection layer comprises silica and synthetic polymer.
40. (New) An encapsulation vesicle as recited in claim 20, wherein said acceptor molecule is selected from the group consisting of Fast green and Light green SF yellowish.
41. (New) An encapsulation vesicle as recited in claim 20, wherein said acceptor molecule is selected from the group consisting of cyanines, oxazines, thiazines, porphyrins, phthalocyanines, fluorescent infrared-emitting polynuclear aromatic hydrocarbons, phycobiliproteins, squaraines, organo-metallic complexes, and azo dyes.
42. (New) An encapsulation vesicle as recited in claim 1 further comprising an acceptor molecule attached to said protection layer, wherein said acceptor molecule is capable of absorbing fluorescence that has been emitted from said fluorescent donor molecule.
43. (New) An encapsulation vesicle as recited in claim 42, wherein said acceptor molecule is selected from the group consisting of Fast green and Light green SF yellowish.
44. (New) An encapsulation vesicle as recited in claim 42, wherein said acceptor molecule is selected from the group consisting of fluorescein, Cy5 and allophycocyanin.
45. (New) An encapsulation vesicle as recited in claim 42, wherein said acceptor molecule is selected from the group consisting of cyanines, oxazines, thiazines, porphyrins, phthalocyanines, fluorescent infrared-emitting polynuclear aromatic hydrocarbons, phycobiliproteins, squaraines, organo-metallic complexes, and azo dyes.
46. (New) An encapsulation vesicle as recited in claim 42, wherein an absorption band of said acceptor molecule overlaps with an emission band of said fluorescent donor molecule.

47. (New) An encapsulation vesicle as recited in claim 1, wherein said fluorescence is susceptible to collisional quenching by oxygen and said protection layer reduces the diffusion of oxygen into said surface coating.

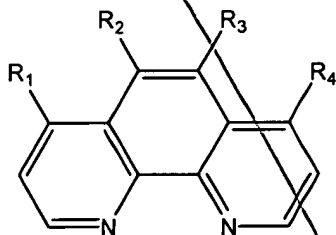
48. (New) An encapsulation vesicle as recited in claim 8, wherein said fluorescent donor molecule is:



where M is selected from the group consisting of Ru, Os and Re; and
L₁-L₃ are each independently selected from the group consisting of:

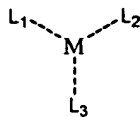


and



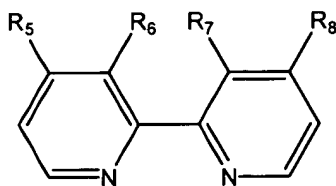
where R₁-R₈ are each independently selected from the group consisting of H, alkyl and aryl.

49. (New) An encapsulation vesicle as recited in claim 8, wherein said fluorescent donor molecule is:

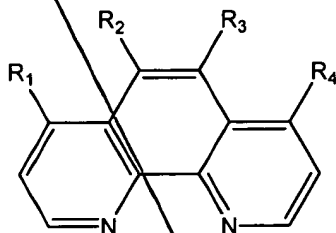


where M is Os;

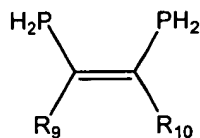
L₁ is:



; or



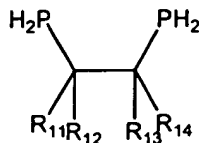
; and L₂ and L₃ are independently selected from the group consisting of:



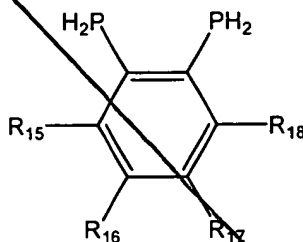
;

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; and



where R₁-R₁₈ are each independently selected from the group consisting of H, alkyl, and aryl.

Remarks

Claims 1-31 are pending. Claims 28-31 are withdrawn from consideration as being directed to a non-elected invention. Claims 1-27 stand rejected under 35 U.S.C. §§102 and/or 112.

Amendment to the specification:

The first line of the "Summary of the Invention" has been amended to more appropriately describe the invention. No new matter is added by way of these amendments. In particular, the first line has been amended to specify that the "invention" provides more than just a composition of matter and method of using the same for immunoassays. This amendment is supported by the entire specification and in particular by the first line of the "Abstract" (see page 21, lines 4-5).

As required, attached hereto as **Appendix A** is a marked-up version of the changes made to the specification by the present Amendment.